

REMARKS

Applicants point out that the finality of this rejection is improper under MPEP 706.07(b). Applicant's file a Request for Continued Examination on September 17, 2005 together with an amendment of the claims. Previously an Advisory Action dated August 31, 2004 was issued because a previous amendment was deemed to introduce new issues requiring further consideration. The current office action was a first action after the RCE and a first action final rejection was premature and improper. Removal of the finality of the outstanding rejection is requested.

The examiner has rejected claims 1-8, 10, and 11 under 35 U.S.C. 103 over Traill et al. in view of Savage. It is respectfully urged that this ground of rejection is not well taken.

The present invention relates to a process for forming low-viscosity, hot water-coagulable cellulose ethers. The application claims the depolymerization of such cellulose ethers by hydrolytic degradation. In particular the invention claims: A process for the depolymerization of hot water-coagulable cellulose ethers by hydrolytic degradation by means of acids, wherein the degradation is carried out at a temperature above the cloud point of the cellulose ether as concentrated aqueous slurry, and in addition at least one oxidizing agent is added to the concentrated aqueous slurry in an amount of between 0.05 and 5% by weight, before, during and/or after the depolymerization in acidic or neutral medium.

The examiner takes the position that Traill et al. teaches each feature of the present claims except for the addition of an oxidizing agent as described in the present claim 1. In an effort to fill this void, the examiner cites Savage. However, Applicants respectfully submit that the examiner is merely selecting and combining features from references where there is no suggestion in those references to do so. Further, it is urged that even upon such a combination, the present claims would not be obviated.

Traill et al. certainly relates to a method for making cellulose ethers. In particular, Traill teaches a process of lowering the viscosity of cellulose ethers by treating a high viscosity cellulose ether with a dilute acid at an elevated temperature (115 - 160°C) and elevated pressure for approximately 20 minutes to 1 hour (see Traill, page 1, lines 23-39) until the viscosity of the ether has been reduced as far as desired. The acid concentration is in the range of 0.5 to 5.0% by weight (see Traill, page 1, line 93). Hydrochloric acid may be employed as the acid (see Example 1), and the weight of the dilute acid is shown as being several times higher than the weight of the cellulose ether. Importantly, as the examiner admits, Traill, et al does not disclose nor suggest the inclusion of an oxidizing agent during his process. Also, Table 1 of the present invention shows that the amount of hydrochloric acid in the present invention represents a small weight percentage, ranging from about 4 to about 16% by weight, of the dry cellulose ether. Thus, in this further respect, Applicants respectfully urge that the disclosure of Traill actually *teaches away* from the present invention. Thus, it is urged that one skilled in the art would not have been inspired to look to the teachings of Traill et al. in an effort to devise the presently claimed invention.

Tralli teaches a process for reducing the viscosity of a cellulose ether, in which the cellulose ether is treated with a dilute acid, usually at elevated pressure and increased temperature. The weight of the dilute acid is several times higher than the weight of the cellulose ether (col. 1, l. 33 - 44). The degradation of the cellulose ether thus takes place in an aqueous environment.

As stated above, the examiner attempts to fill the void of Traill by citing Savage. Indeed Savage relates to a process for reducing the viscosity of a cellulose ether, using hydrogen peroxide. However, Applicants again urge that the teachings of Savage differ from those of the present invention such that one skilled in the art would not have looked to Savage in an effort to formulate the present invention.

Contrary thereto, Savage teaches an oxidative process for reducing the viscosity of cellulose ether, in which an essentially dry, free-flowing particulate cellulose ether is

treated with hydrogen peroxide. On page 3 of the Office Action, bottom paragraph, the Examiner pointed to Example 1 of Savage, which allegedly discloses a process wherein the cellulose ether is in a 2 % aqueous solution. This statement is not correct. In the example it is merely stated that the viscosity of the cellulose ether used as the starting material should be determined on a standard 2 % aqueous solution. The viscosity of an essentially dry, particulate cellulose ether cannot not be determined directly. An aqueous solution of the cellulose ether is thus only used for analytical test purposes. In the Kobayashi reference (see below) it is in the same way disclosed that the viscosity of cellulose ether is tested using a 2 % aqueous solution (see Examples). In the actual process as detailed in the Example, 100 parts by weight of a dry, finely powdered hydroxypropyl methyl cellulose are treated with 3 parts by weight of a 3 % aqueous hydrogen peroxide solution. The resulting composition is still essentially dry. The process for lowering the viscosity of a cellulose ether as taught by Savage is always a dry one, and that is also true for Example 1.

Furthermore, Savage does not teach acidic conditions. It is only said that the pH of the hydrogen peroxide solution is not a critical factor (col. 3, l.19), and that alkaline conditions (pH about 8 to 11) are generally more effective. It should be kept in mind that the hydrogen peroxide solution is according to Savage always employed in a small amount, which leaves the cellulose ether in the essentially dry, particulate form. A person of ordinary skill in the art would not have combined the wet, acidic process of Traill et al. with the oxidative, dry, preferably alkaline process of Savage in the way suggested in the Office Action.

Savage does not disclose or suggest use of an acid in an aqueous slurry. Specifically, describes a process using *alkaline* reaction conditions (see Col. 3, lines 20-21), while the present invention uses *acidic* reaction conditions. Furthermore, the present invention teaches a decrease in viscosity as a result of non-oxidative chain shortening, which is a *hydrolytic degradation* of the polymer chain in the presence of acid as a catalyst. In contrast, the Savage reference relates to an *oxidative depolymerization* resulting in a loss of viscosity (see Savage, Col. 2, lines 48-51). In Savage's process, a small amount of

hydrogen peroxide is sprayed onto a cellulose ether which is an essentially dry and free-flowing particulate form (see col.2, lines 29-32) rather than an aqueous slurry. Savage teaches that the moisture content of the cellulose should be kept below 5% by weight (col. 2, line 37). The amount of hydrogen peroxide is preferably in the range of from 0.1 to 5.0% by weight, based on the weight of the dry cellulose ether (col. 3, lines 39-42). Even after addition of the aqueous hydrogen peroxide, the cellulose ether is in a free-flowing, essentially dry particulate form. The pH of the reaction mixture is said to be a non-critical factor. Nevertheless, mild alkaline conditions (pH 8 to 11) may be more effective (col. 3, lines 10-25). Acidic conditions are not in any way contemplated by Savage. Savage thus clearly teaches away from adding hydrogen peroxide to an aqueous, strongly acidic slurry of a cellulose ether. There would be no suggestion to those skilled in the art to add Savage's oxidant in Traill, et al's composition. It is respectfully submitted that the examiner is impermissibly reconstructing the art in light of applicant's disclosure.

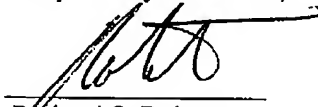
For the above reasons, it is urged that a person of ordinary skill in the art would not have been inspired to look to the disclosure of Savage or Traill, either alone or in combination, in an effort to formulate the presently claimed invention. It is urged that there is nothing in the cited art which would teach or suggest how or why one would combine the teachings of these references in an effort to devise the presently claimed invention. Applicants therefore respectfully request that the 35 U.S.C. 103 rejection be withdrawn

The examiner has rejected claims 12-18 under 35 U.S.C. 103 over Kobayashi et al. in view of Savage. These claims are currently cancelled subject to applicant's right to file a divisional application for this subject matter.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the examiner believes there is any matter which prevents allowance of the present application, it is requested that the

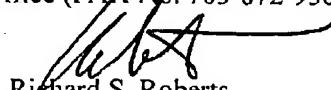
undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,



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I hereby certify that this paper is being facsimile transmitted to the United States Patent and Trademark Office (FAX No. 703-872-9306) on February 28, 2005.



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